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a directional, material sensitive probe connected to and receiving from said interface system said spatial information and said geometry; said material sensitive probe constructed to acquire material specific information about said suspicious region by employing said geometry; and

a computer constructed to process said material specific information to identify presence of said specific material in said suspicious region.

13. (Amended) An inspection system for detecting a specific material of interest in items of baggage or packages, comprising:

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a multi-view X-ray inspection probe constructed to employ X-ray radiation transmitted through or scattered from an examined item to identify a suspicious region inside said examined item; said multi-view X-ray inspection probe constructed to identify said suspicious region using several examination angles of said transmitted or scattered X-ray radiation, and also constructed to obtain spatial information of said suspicious region and to determine a geometry for subsequent examination;

an interface system constructed and arranged to receive from said X-ray inspection probe [X-ray] data providing said spatial information [of said suspicious region] and said geometry;

a material sensitive probe connected to and receiving from said interface system said spatial information and said geometry; said material sensitive probe constructed to acquire material specific information about said suspicious region by employing said geometry; and

a computer constructed to process said material specific information to identify presence of said specific material in said suspicious region.

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15. (Amended) An X-ray inspection method of detecting a specific material of interest in items of baggage or packages, comprising:

employing X-ray radiation transmitted through or scattered from an examined item to obtain multi-view spatial information about the examined item;

identifying from said spatial information a suspicious region inside said examined item, said identifying step being performed by employing several examination angles of said transmitted or scattered X-ray radiation;

determining a geometry for subsequent examination;

employing a directional, material sensitive probe using said geometry to acquire material specific information about said suspicious region; and

identifying, based on computer-processing, presence of said specific material in said suspicious region.

16. (Amended) The X-ray inspection method of claim 15 wherein said employing and identifying steps comprise [step of employing X-ray radiation comprises]

exposing said examined item, at multiple locations and examination angles, to a fan beam of X-ray radiation;

detecting X-ray radiation transmitted through or scattered from said examined item; and

processing detected X-ray data to identify said suspicious region.

29. (Amended) An X-ray inspection method of detecting a specific material of interest in items of baggage or packages, comprising:

employing X-ray radiation transmitted through or scattered from a examined item to obtain multi-view spatial information about the examined item;

identifying from said spatial information a suspicious region inside said examined item, said identifying step being performed by employing several examination angles of said transmitted or scattered X-ray radiation;

determining a geometry for subsequent examination;

employing a material sensitive probe using said geometry to acquire material specific information about said suspicious region; and

identifying, based on computer-processing, presence of said specific material in said suspicious region.

[ Please add the following new claims:

--31. The X-ray inspection method of claim 15 wherein said identifying step further includes  
identifying an object in said item;  
selecting a measurement angle for said X-ray radiation;  
measuring a value of a material parameter of said object; and

comparing said measured value to a selected value of said material parameter to identify said suspicious region.

32. The X-ray inspection method of claim 31 wherein said material parameter is one of the following:  $Z_{eff}$ , mass, and density.

33. The X-ray inspection method of claim 15 wherein said identifying step further includes  
identifying an object inside of said item;  
selecting coordinates for a pencil beam of X-ray radiation;

measuring a value of a material parameter of said object by employing said pencil beam; and

comparing said measured value to a selected value of said material parameter to identify said suspicious region.

34. The X-ray inspection method of claim 33 wherein said material parameter is one of the following:  $Z_{eff}$ , mass, and density.

35. The X-ray inspection method of claim 15 wherein said determining step includes finding, based on said examination

angles, spatial coordinates for an X-ray pencil beam used for said subsequent examination.

36. The X-ray inspection method of claim 15 wherein said determining step includes performing, based on said examination angles, at least a partial reconstruction of objects in said suspicious region;

displaying an image of said objects; and

receiving from a user an input signal comprising information about said geometry.

37. The X-ray inspection method of claim 15 wherein said determining step includes performing, based on said examination angles, at least a partial reconstruction of objects in said suspicious region; and calculating said geometry based on said partial reconstruction.

38. The inspection system of claim 12 wherein said user interface is further constructed to receive an input from a user providing information about said geometry.

39. The inspection system of claim 13 further comprising a graphical interface, a display and a user interface constructed and arranged to display an image of objects in said suspicious region and receive an input from a user providing information about said geometry.--

#### REMARKS

The invention features an inspection method or system for detecting a specific material of interest in items of baggage or packages. The system includes a multi-view X-ray inspection probe that identifies a suspicious region inside the examined item. The multi-view probe identifies the suspicious region using several examination angles to obtain spatial information about the suspicious region and to determine a geometry for subsequent examination. An interface system receives the spatial

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